Climate Change and Waste Management

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Session Overview

- *U.S. MSW Management Practices*
- *U.S. GHG Emissions*
- *Office of Solid Waste Climate Program Overview*
- *GHG Emission Factors for Waste Management*

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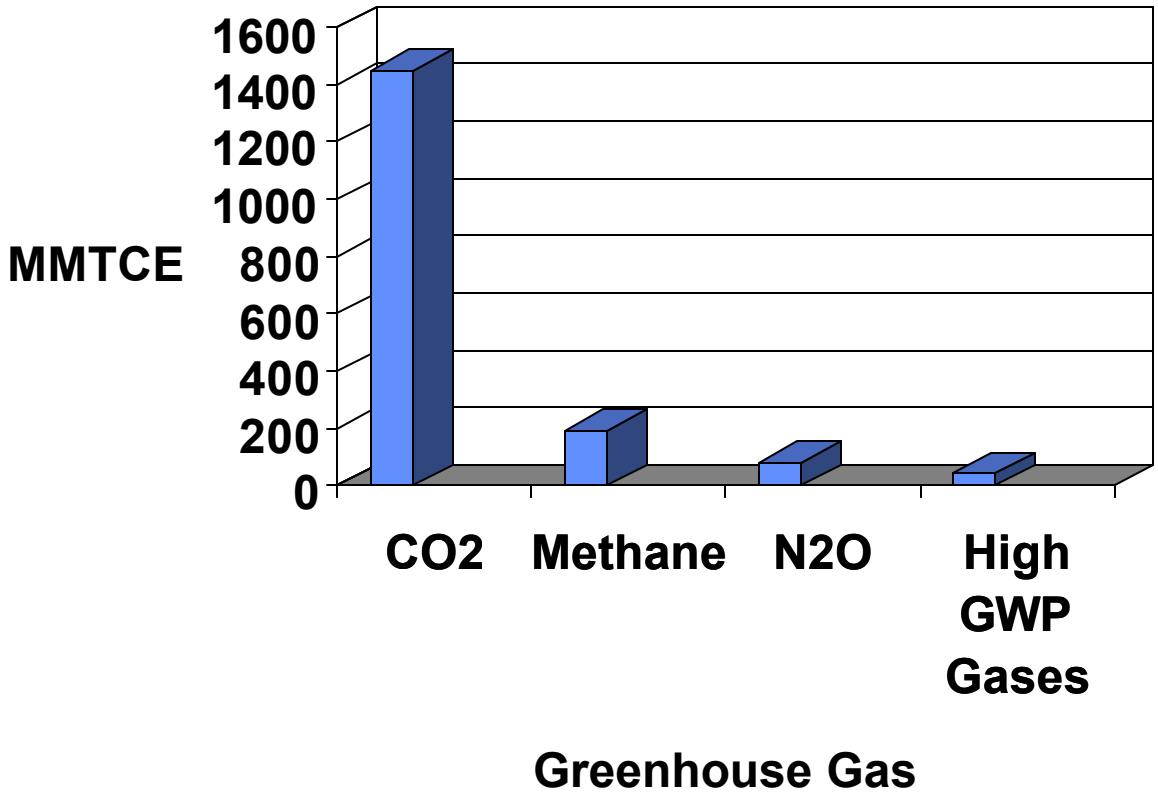
U.S. Greenhouse Gas Emissions



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U.S. Methane Emissions

- Landfills - 36%
- Enteric Fermentation - 19%
- Natural Gas Systems - 19%
- Coal Mining - 11%
- Manure Management - 9%
- Others - 5%

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Program Objectives

- *President Clinton's Climate Change Action Plan Source Reduction and Recycling initiative targets 5 MMTCE in GHG reductions by 2000*
- *GHG reductions through selected programs: WasteWise, Pay-As-You-Throw, Climate Grants*
- *Research*

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WasteWise Program

- Voluntary partnership program with over 800 partners
- Goals: waste prevention, buy/manufacture recycled products, and recyclables collection
- Report progress annually

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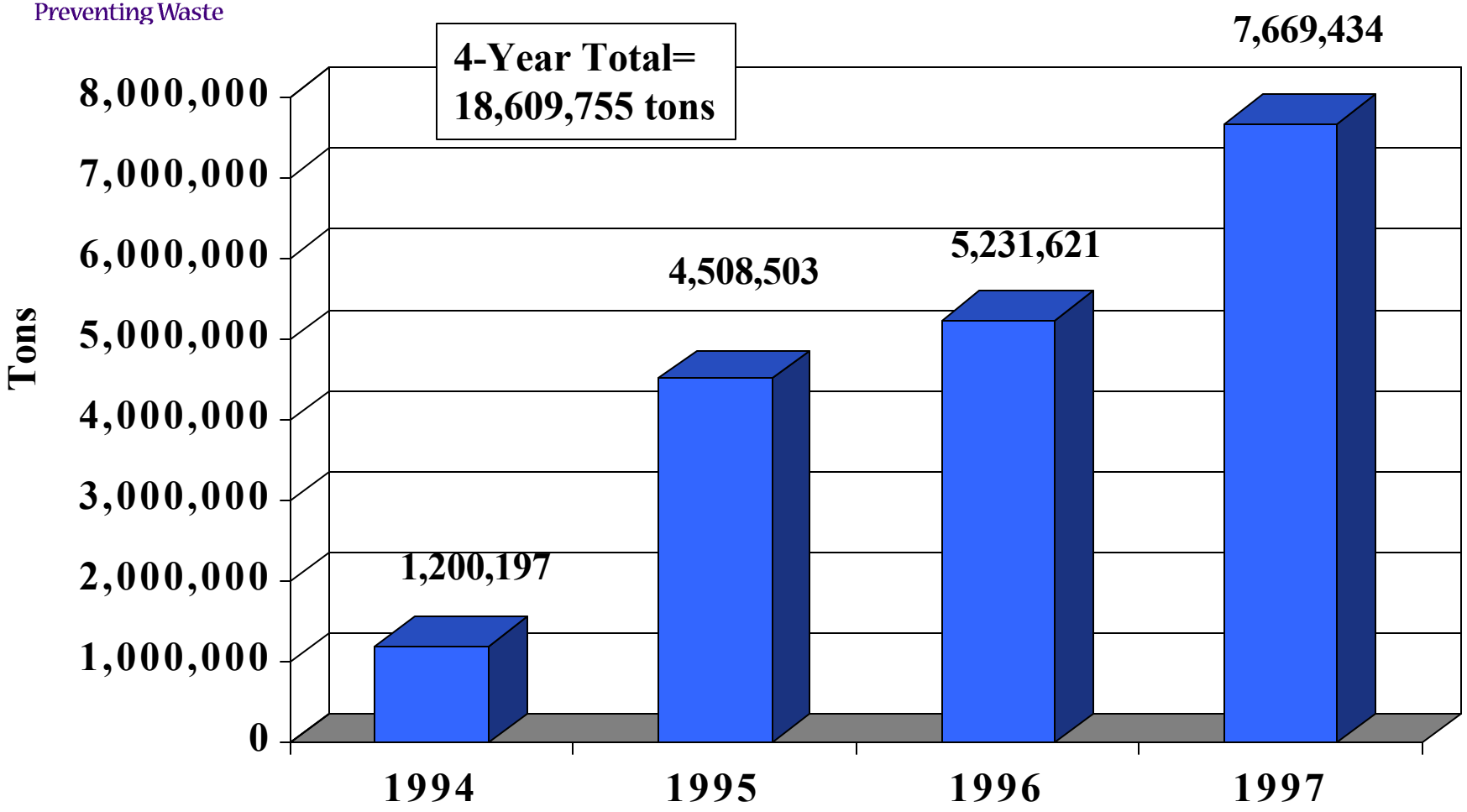
EPA WASTE WISE

Preserving Resources, Preventing Waste

Waste Reduction Achievements



Waste reduction achievements refer to waste prevention and recycling results.

Pay-As-You-Throw Program

- Economic incentive program for reducing waste
- Pay for trash like a utility
- The more you throw away, the more you pay
- Provide tools, technical assistance and grants

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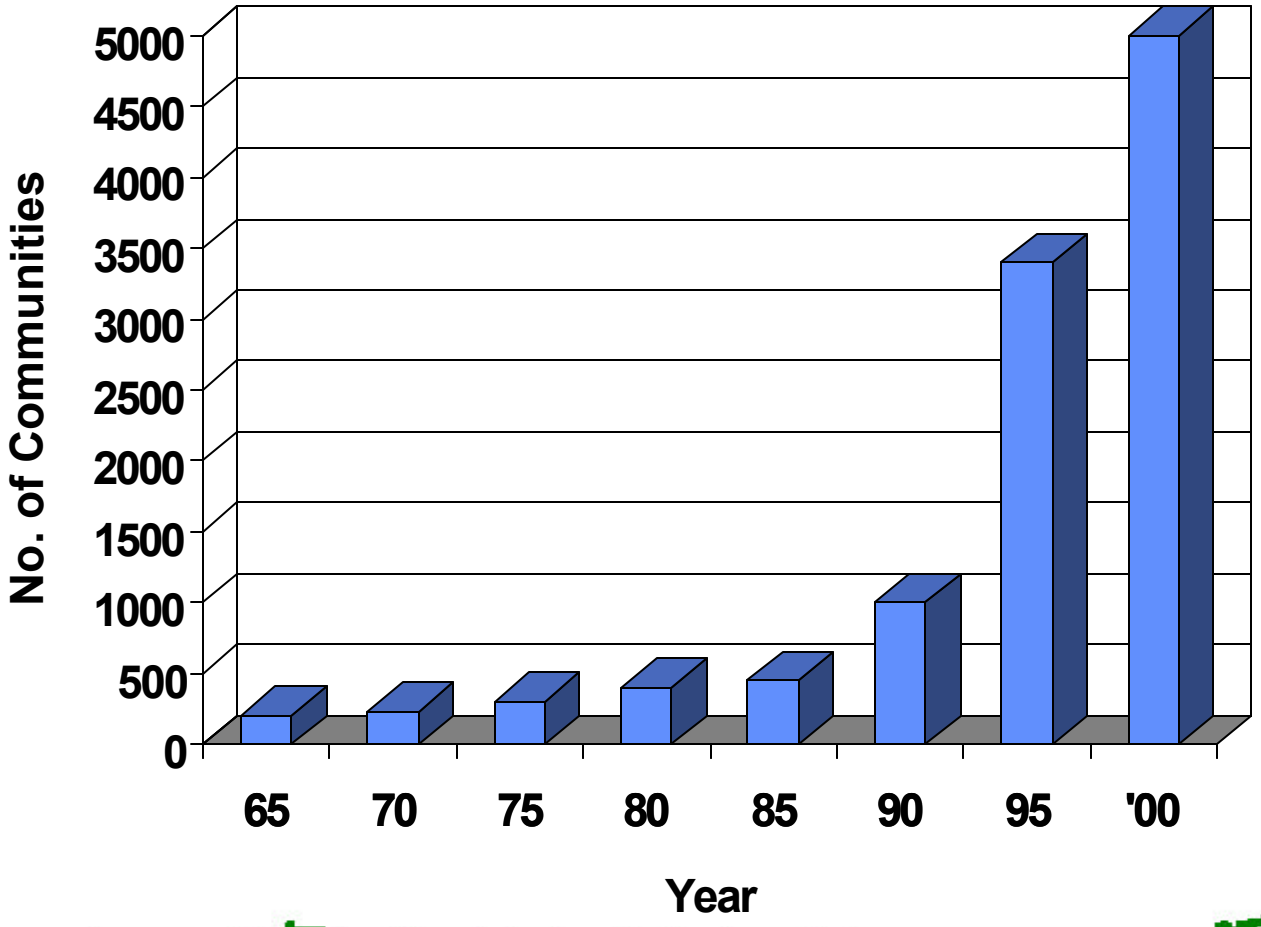
Growth in PAYT Programs



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Climate Innovative Waste Reduction Projects

- Support states and local governments
- Implement innovative waste reduction activities
- 30+ efforts ongoing in 25 States

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RESEARCH

- Provide tools for policymakers and businesses to plan GHG reduction actions

- Developed emission factors to support GHG voluntary reporting activities

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GHG REPORT

- ***Waste materials***
  - Focused on major components of MSW -- paper (office, news, corrugated, mixed), aluminum cans, steel cans, plastics (HDPE, LDPE, PET), yard trimmings, food scraps, glass
- ***5 waste management strategies***:
  - Source reduction, recycling, composting, combustion, landfilling

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GHG REPORT METHODOLOGY

- Streamlined LCA—GHG emissions and sinks from MSW only:
  - Process and transportation in raw material acquisition and manufacturing stages
  - Process and transportation when recycling
  - Forest carbon storage from source reduction and recycling
  - Soil carbon storage when composting
  - Non-biomass GHG emissions from waste combustors
  - Decomposition in landfills

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GHG EMISSIONS AND SINKS FROM SOURCE REDUCTION

- *No process or transportation emissions from materials acquisition or manufacturing*
- *Increase in forest carbon storage for paper products*
- *No emissions from waste management*

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GHG EMISSIONS AND SINKS FROM RECYCLING

- *Lower emissions in manufacturing with recycled feedstocks*
- *Increase in forest carbon storage with paper products*
- *Some emissions from collection and processing of recyclables*
- *No emissions from waste disposal*

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GHG EMISSIONS FROM COMBUSTION

- *CO_2 and N_2O emissions from non-biogenic sources*
- *GHG reductions from energy recovery*
- *GHG reductions from ferrous recovery*

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GHG EMISSIONS AND SINKS FROM LANDFILLING

- *Methane emissions*
- *GHG reductions from gas collection*
- *GHG reductions from energy recovery*
- *Carbon storage from undecomposed biogenic carbon*

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GHG EMISSION FACTOR APPLICATIONS

- Supports climate change mitigation analysis
- Only intended for voluntary reporting of GHG reductions
- Methodology may assist other countries in developing their own emission factors

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GHG Emission Factor Applications

- Emission factors used to measure impact of key EPA waste reduction programs:
  - WasteWi$e
    - **Flagship business waste-reduction program**
    - **Just expanded to state and local gov't, over 800 partners now participating**
    - 1997 results:
      - 6.8 million tons recycled;
      - 816,000 tons reduced
    - 5.0 million MTCE reduced

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Limitations of Analysis

- Manufacturing GHG analysis is based on estimated industry averages
- Forest carbon sequestration values are based on computer modeling
- Combustion analysis uses U.S. averages
- Landfill analysis is based on limited laboratory data

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Looking Forward

- **Future Activities:**
  - Hold dialogues with industry stakeholders
  - Continue work with states and local governments
  - Develop international partnerships

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